

CLAIMS

1. A coaxial cable connector, comprising:

an inner contact configured to be securable to a center conductor of a coaxial cable;

a connector housing having a cavity for receiving said inner contact and configured for receiving the coaxial cable;

an outer contact secured to said connector housing and configured to be securable to an outer braid conductor of the coaxial cable; and

a coaxial cable displacement section connected to said outer contact, the coaxial cable displacement section having a displacement beam configured to pierce and hold an outer braid conductor of a coaxial cable with a residual retention force.

2. The coaxial cable connector of claim 1, wherein said coaxial cable displacement section includes at least two displacement beams spaced apart by a distance greater than an outer diameter of a center conductor of a coaxial cable and less than an inner diameter of an outer braid conductor of a coaxial cable so as to pierce an outer braid conductor of a coaxial cable in two locations.

3. The coaxial cable connector of claim 1, further comprising multiple displacement beams spaced apart by a distance less than an inner diameter of an outer braid conductor of a coaxial cable.

4. The coaxial cable connector of claim 1, wherein the coaxial cable displacement contact section further comprises a pair of braid-receiving slots separated from one another by a distance corresponding to a diameter of an outer braid conductor of a coaxial cable.

5. The coaxial cable connector of claim 1, wherein the coaxial cable displacement section includes a braid-receiving slot, each braid-receiving slot being

configured to receive, and exert said retention force on, an outer braid conductor of the coaxial cable.

6. The coaxial cable connector of claim 1, wherein the displacement beam includes an evenly tapered tip configured to guide said displacement beam along a straight path into a dielectric layer between center and outer braid conductors of a coaxial cable.

7. The coaxial cable connector of claim 1, wherein said inner contact represents a first inner contact, said connector further comprising:

a second inner contact matable with said first inner contact, said second inner contact being configured to be secured a center conductor of a second coaxial.

8. The coaxial cable connector of claim 1, wherein said outer contact represents a first outer contact, said connector further comprising:

a second outer contact matable with said first outer contact, said second outer contact being configured to be secured to an outer braid conductor of a second coaxial cable.

9. The coaxial cable connector of claim 1, wherein the coaxial cable displacement section includes a forked section defined by a contact wall and said displacement beam separated from one another by a slot, said contact wall having a tapered edge forming a collection area configured for receiving a portion of a jacket of a coaxial cable.

10. The coaxial cable connector of claim 1, wherein the coaxial cable displacement section includes an under-cut edge tapered downward and away from a tip of said displacement beam.

11. The coaxial cable connector of claim 1, wherein the coaxial cable displacement section includes a braid receiving slot extending downward and is flared to form a base well.

12. A method for mounting a connector to a coaxial cable having inner and outer conductors separated by a dielectric layer, the method comprising:

exposing an end portion of an inner conductor of a coaxial cable;

securing an inner contact to the end portion of the inner conductor;

positioning the coaxial cable and inner contact in an insulated housing with the inner and outer conductors of the coaxial cable extending along a longitudinal axis of the insulated housing; and

laterally inserting, in a direction transverse to said longitudinal axis, a coaxial cable displacement contact into the coaxial cable until the coaxial cable displacement contact pierces the coaxial cable and engages the outer conductor with a retention force.

13. The method of claim 12, further comprising:

laterally inserting, in said transverse direction, a pair of coaxial cable displacement contacts along opposite sides of the inner conductor of the coaxial cable until the pair of coaxial cable displacement contacts pierce and securely hold sections of the outer conductor on opposite sides of the inner conductor of the coaxial cable.

14. The method of claim 12, further comprising:

before inserting the coaxial cable displacement contact into the coaxial cable, centering the coaxial cable over a gap between a pair of displacement beams on the coaxial cable displacement contact ; and

pressing the displacement beams onto the coaxial cable until the displacement beams pierce and electrically engage opposed side sections of the outer conductor with each displacement beam apply a retention force onto a respective opposed side section of the outer conductor of the coaxial cable.

15. The method of claim 12, further comprising:

inserting the coaxial cable displacement contact until piercing a dielectric layer of the coaxial cable with at least one displacement beam on the coaxial cable displacement contact .

16. The method of claim 12, further comprising:

inserting the coaxial cable displacement contact until piercing the outer conductor and dielectric layer of the coaxial cable with a forked section of the coaxial cable displacement contact until the outer conductor becomes frictionally secured in a slot in the forked section.

17. A coaxial cable displacement contact for connection with a coaxial cable having an inner conductor and an outer conductor separated by a dielectric layer and encased in a jacket, the coaxial cable displacement contact comprising:

a displacement section configured to pierce a coaxial cable, said displacement section having a forked section extending from a base, said forked section including a displacement beam and contact wall separated by a braid-receiving slot; and

said braid-receiving slot having a slot width corresponding to a radial width of an outer conductor of a coaxial cable, said displacement beam being positioned to displace portions of a dielectric layer and a jacket on either side of an outer conductor, said displacement beam and contact wall being configured to induce a retention force on a section of an outer conductor of a coaxial cable wedged in said braid-receiving slot when said displacement beam pierces a coaxial cable.

18. The coaxial cable displacement contact of claim 17, further comprising a pair of displacement sections separated by a cable channel configured for receiving an inner conductor and a portion of a dielectric layer surrounding an inner conductor, said cable channel having a width less than an inner diameter of an outer conductor of a coaxial cable.

19. The coaxial cable displacement contact of claim 17, wherein said displacement beam is configured to pierce an outer conductor of a coaxial cable and extend into a dielectric layer, said displacement beam having a beam width less than a radial thickness of a dielectric layer separating inner and outer conductors of a coaxial cable.

20. The coaxial cable displacement contact of claim 17, further comprising:

a cable retention housing having a channel with a radiused inner surface conforming to a shape of, and configured to receive, a coaxial cable, said cable retention housing having a guideway slidably receiving said displacement section in an orientation transverse to an axis of said channel.

21. The coaxial cable displacement contact of claim 17, further comprising:

a housing slidably receiving said displacement section, said housing having a channel with an inner contour conforming to a shape of a coaxial cable, said housing being configured to prevent deformation of a coaxial cable when said displacement beam pierces a jacket and an outer conductor of a coaxial cable.

22. The coaxial cable displacement contact of claim 17, further comprising:

a cable support configured to orient a coaxial cable along a predefined cable axis, said cable support having opposed contact guides oriented in a plane traversing said predefined cable axis, said contact guides slidably receiving and aligning opposite edges of said braid crimp arm to guide said forked section onto an outer conductor of a coaxial cable.

23. The coaxial cable displacement contact of claim 17, further comprising:

a housing having sides separated by a radiused trough extending along a length of said housing, said housing including opposed notches in said sides of said housing, said notches slidably receiving said contact wall.

24. The coaxial cable displacement contact of claim 17, wherein said contact wall has a tapered edge forming a collection area configured for receiving a portion of a jacket of a coaxial cable.

25. The coaxial cable displacement contact of claim 17, wherein said displacement section includes an under-cut edge tapered downward and away from a mouth of said braid-receiving slot.

26. The coaxial cable displacement contact of claim 17, wherein said braid receiving slot extending downward and is flared to form a base well.

27. A connector assembly for connection with a coaxial cable having an inner conductor and an outer conductor separated by a dielectric layer and encased in a jacket, the connector assembly comprising:

a pair of displacement members having forked sections extending from a base, each forked section including a displacement beam and a braid-receiving slot configured to receive an outer conductor of a coaxial cable; and

a braid guide having a channel configured to receive a coaxial cable and having arm relief slots located on opposite sides of said channel, said arm relief slots slidably receiving said displacement members, said arm relief slots being configured relative to said channel to guide said forked sections to pierce an outer conductor of a coaxial cable.

28. The connector assembly of claim 27, wherein said channel extends along a longitudinal axis between open ends of said braid guide, said arm relief slots being aligned with one another in a plane perpendicular to said longitudinal axis.

29. The connector assembly of claim 27, wherein said arm relief slots extend perpendicular to a longitudinal axis of said channel.

30. The connector assembly of claim 27, wherein said channel includes an open end configured to receive a coaxial cable and an open side along a length of said channel configured to laterally accept said displacement members.

31. The connector assembly of claim 27, wherein each of said displacement beams and said braid-receiving slot have widths based on inner and outer diameters of an outer conductor and a dielectric layer of a coaxial cable such that, when said displacement member pierces a coaxial cable, an outer conductor is wedged in said braid-receiving slot and said displacement beam induces a retention force onto an outer conductor of a coaxial cable.